

Technical Procedures for Processing with Small Particle Reagent

1 Scope

Small Particle Reagent is an aqueous solution used by FBI Laboratory Friction Ridge Discipline personnel to develop sebaceous latent prints on submerged firearms. Small Particle Reagent is commercially available and only white or black (dark) formulations are acceptable.

2 Limitations

Developed prints will be photographed immediately as drying of the item may cause the prints to fade and rust formation can be detrimental to firearms examinations.

3 Equipment/Materials/Reagents

Small Particle Reagent (White or Black/Dark)

4 Procedures

4.1 Application

Personnel will complete the following steps in order:

1. Prepare the working solution following the manufacturer's instructions. Personnel will use only premade solutions of Small Particle Reagent.

Note: Container should be frequently shaken during processing to re-suspend solids.

2. Remove firearm from water. Do not dry the item.
3. Use the Small Particle Reagent solution according to the manufacturer's instructions.

Note: If development is not sufficient, the Small Particle Reagent solution can be reapplied to the item.

4. Capture developed latent prints as appropriate. For digital capture and photography, see FBI Friction Ridge Discipline Processing Manual Preamble.
5. Replace the firearm in water upon completion of processing.

A copy of the instructions, to include the manufacturer and Lot number (if available), will be retained in the case record.

4.2 Storage

Small Particle Reagent solutions can be stored in original containers.

4.3 Shelf Life

Small Particle Reagent solutions can be used provided the reagent checks are satisfactory.

If the working solution is separated, shake vigorously. If the solution does not return to suspension, discard the solution.

5 Standards and Controls

See FBI Friction Ridge Discipline Processing Manual, Preamble.

6 Safety

See FBI Laboratory Safety Manual for appropriate information.

7 Sampling

Not applicable.

8 Calculations

Not applicable.

9 Measurement Uncertainty

Not applicable.

10 References

FBI Laboratory Safety Manual, Federal Bureau of Investigation, Laboratory Division. Latest Revision.

FBI Friction Ridge Discipline Processing Manual, Preamble, Federal Bureau of Investigation, Laboratory Division. Latest Revision.

Book, M. K. and Tullbane, J. "Detection of Latent Print on Handguns After Submersion in Water." *Evidence Technology Magazine*. September-October 2011: 22-25, 29.

Lightning Powder Company. Technical Note No 1-2757. Small Particle Reagent. 4/2000.

Lynn Peavey Company. WetPrint®. 1/4/2005.

Onstwedder, J., III and Gamboe, T.E., Jr. "Small Particle Reagent: Developing Latent Prints on Water-Soaked Firearms and Effect on Firearms Analysis." *JFI*. 34(2):321-327.

Rev. #	Issue Date	History
2	10/02/17	Specific section numbers referenced in Preamble removed throughout document. Section 1, latent print personnel added. Section 4 removed and remaining renumbered. Titles for Section 4 and Section 7 modified. Section 9, generalized. Updated for Biometrics Analysis Unit. References Updated. Section 5.2 e, document added. Abbreviations addressed.
3	07/15/21	Replace Latent Print Units with Friction Ridge Discipline. Minor wording changes. Streamline equipment list. Re-organization and re-numbering of sections. Section 1, Removed brand name. Section 4.3, modified shelf life. Section 5, added reference to Preamble.

Approval

Redact - Signatures on File

Friction Ridge Discipline
Technical Leader

Date: 07/14/2021

Latent Print Operations
Unit Chief

Date: 07/14/2021

Latent Print Support Unit
Chief

Date: 07/14/2021

Scientific and Biometrics
Analysis Unit Chief

Date: 07/14/2021